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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/729,654

12/05/2003

Gurupdes S. Pandher

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FITCH EVEN TABIN AND FLANNERY  
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CHICAGO, IL 60603-3406

EXAMINER

MERCHANT, SHAHID R

ART UNIT

PAPER NUMBER

3694

MAIL DATE

DELIVERY MODE

09/13/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/729,654

Applicant(s)

PANDHER, GURUPDESH S.

Examiner

Shahid R. Merchant

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 5/3/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Priority*

1. Examiner has given consideration to applicant's Provisional Application No. 60/431,431 filed on December 9, 2002. For examining purposes of this application, the effective filing date will be December 9, 2002.

### *Claim Objections*

2. Claim 3 objected to because of the following informalities: the claim recites wherein identifying and later (4th line) recites comprising identifying. The claim is very confusing as to what Applicant is trying to claim. Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 9, 13 and 14 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The terms substantially risk-neutral valuation,

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substantially arbitrage-free valuation and substantially independent are relative terms with no clear definition provided in the specification.

***Claim Rejections - 35 USC § 101***

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 15-20 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 15-20 recite a digital memory medium, which by it self is non-statutory. MPEP § 2106.02 states Nonfunctional descriptive material that does not constitute a statutory process, machine, manufacture, or composition of matter and should be rejected under 35 U.S.C. 101. Certain types of descriptive material, such as music, literature, art, photographs, and mere arrangements or compilations of facts or data, without any functional interrelationship is not a process, machine, manufacture, or composition of matter. Applicant does not recite a computer readable-medium being capable of execution on a computer processor.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-5, 8-10, 15 and 17-18 rejected under 35 U.S.C. 102(b) as being anticipated by Schultz, U.S. Patent Application Publication 2001/0056391 (see PTO-892, Ref. A).

9. As per claim 1, Schultz teaches a method for valuing options comprising: identifying at least a first and second option termination event which first and second option termination event can each impact in different ways, at least in part, a window of exerciseability and an option's termination-dependent value; providing an option pricing model as a function, at least in part, of a risk assessment for the first and second option termination event (see abstract and paragraphs 57-63).

10. As per claim 2, Schultz teaches the method of claim 1 as described above. Schultz further teaches wherein the method for valuing options further comprises a method for valuing stock options (see abstract and paragraph 16).

11. As per claim 3, Schultz teaches the method of claim 2 as described above. Schultz further teaches wherein identifying at least a first and second option termination event which first and second option termination event can each impact in different ways, at least in part, a window of exerciseability and an option's termination-dependent value comprises identifying at least a first and second stock option termination event which first and second stock option termination event can each impact in different ways, at least in part, a window of exerciseability and an option's termination-dependent value (see paragraph 69).

12. As per claim 4, Schultz teaches the method of claim 1 as described above.

Schultz further teaches wherein the first and second option termination events correspond to employment termination events (see paragraph 69).

13. As per claim 5, Schultz teaches the method of claim 4 as described above.

Schultz further teaches wherein at least one of the employment termination events comprises at least one of: voluntary severance; severance for cause; death; corporate bankruptcy (see paragraph 69).

14. As per claim 8, Schultz teaches the method of claim 1 as described above.

Schultz further teaches comprising using the option pricing model to provide a valuation figure for a multiple termination option (see paragraph 69).

15. As per claim 9, Schultz teaches a method for facilitating risk-neutral valuation of executive stock options while taking into account multiple severance risks and exercise

restrictions comprising: identifying multiple severance risks wherein each of the severance risks: is at least partially dependent upon an executive's mode of exit from corresponding employment; and has a corresponding, different ex-severance value; modeling the multiple severance risks to provide at least one corresponding model; using the at least one corresponding model to provide a substantially risk-neutral valuation for the executive stock options (see paragraph 69).

16. As per claim 10, Schultz teaches the method of claim 9 as described above.

Schultz further teaches wherein identifying multiple severance risks comprises identifying at least one of: voluntary severance; severance for cause; death; corporate bankruptcy (see paragraph 69).

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17. Claim 15 recite similar limitations to claim 1 and thus rejected using the same art and rationale in the rejection of claim 1 as set forth above.

18. Claim 17 recite similar limitations to claim 4 and thus rejected using the same art and rationale in the rejection of claim 4 as set forth above.

19. Claim 18 recite similar limitations to claim 5 and thus rejected using the same art and rationale in the rejection of claim 5 as set forth above.

***Claim Rejections - 35 USC § 103***

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

21. Claims 6 and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Schultz, U.S. Patent Application Publication 2001/0056391 (see PTO-892, Ref. A) in view of Rudkin, U.S. Patent Application Publication 2004/0103053 (see PTO-892, Ref. B).

22. As per claim 6, Schultz teaches the method of claim 1 as described above. Schultz does not explicitly teach wherein providing an option pricing model further comprises providing an extension of a binomial model.

Rudkin teaches wherein providing an option pricing model further comprises providing an extension of a binomial model (see Table B on page 7).

Therefore, it would be prima facie obvious to a person of ordinary skill in the art at the time of the invention to combine the teachings of Schultz and Rudkin to provide an extension of a binomial model because it allows one to compare to other models like Black- Scholes and modified Black- Scholes as taught by Rudkin (see Table B on page 7). The Binomial Lattice model and the Black- Scholes model are primarily used for the purpose of valuing market traded options.

23. Claim 19 recite similar limitations to claim 6 and thus rejected using the same art and rationale in the rejection of claim 6 as set forth above.

24. Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Schultz, U.S. Patent Application Publication 2001/0056391 (see PTO-892, Ref. A) in view of Ayache, U.S. Patent Application Publication 2002/0073007 (see PTO-892, Ref. C).

25. As per claims 7 and 20, Schultz teaches the method of claim 1 as described above. Schultz does not explicitly teach wherein providing an option pricing model further comprises providing a multi-termination partial differential equation-based pricing model.

Ayache teaches wherein providing an option pricing model further comprises providing a multi-termination partial differential equation-based pricing model (see paragraphs 32-33).

Therefore, it would be prima facie obvious to a person of ordinary skill in the art at the time of the invention to combine the teachings of Schultz and Rudkin to provide a multi-termination partial differential equation-based pricing model because it allows one



numerically solve a partial differential equation instead of using a stochastic process known as a lattice approach as taught by Ayache (see paragraph 41).

26. Claim 20 recite similar limitations to claim 7 and thus rejected using the same art and rationale in the rejection of claim 7 as set forth above.

27. Claims 11 and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Schultz, U.S. Patent Application Publication 2001/0056391 (see PTO-892, Ref. A) in view of Heterogeneous information arrival and option pricing by Patrick Asea and Mthuli Neube (see PTO-892, Ref. U). Hereinafter Asea.

28. As per claims 11 and 12, Schultz teaches the method of claim 9 as described above. Schultz does not explicitly teach wherein modeling the multiple severance risks to provide at least one corresponding model comprises using a doubly stochastic Poisson probability process.

Asea teaches wherein modeling the multiple severance risks to provide at least one corresponding model comprises using a doubly stochastic Poisson probability process and a multi-severance binomial tree (see page 292-293).

Therefore, it would be prima facie obvious to a person of ordinary skill in the art at the time of the invention to combine the teachings of Schultz and Asea to provide a model using a doubly stochastic Poisson probability process and a multi-severance binomial tree because it is able to reduce some pricing bias as seen in other pricing models as taught by Asea (see page 293).

### ***Conclusion***

The Examiner has cited particular columns and line numbers in the references as applied to the claims for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant, in preparing the responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shahid R. Merchant whose telephone number is 571-270-1360. The examiner can normally be reached on First Friday Off.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James P. Trammel can be reached on 571-272-6712. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

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SRM

  
ELLA COLBERT  
PRIMARY EXAMINER